

THE MAP LEGEND

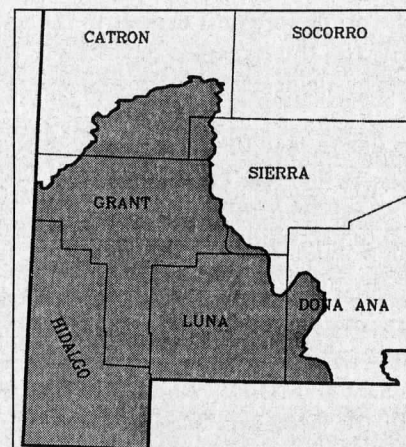
<http://www.state.nm.us/nmgic>

GIS to Assist in Water Management and Planning in Southern New Mexico

GIS coverages of the border region encompassing southwestern New Mexico will play an important role in regional water management and planning. This effort will employ an interdisciplinary team comprising a GIS technician, and hydrology, geology and geochemistry investigators. The project is headed by Bobby Creel of the New Mexico Water Resources Research Institute (WRRI).

The study, funded by the state of New Mexico and the Water Quality Protection Division, U.S. Environmental Protection Agency - Region 6, will concentrate on the border region of southwestern New Mexico including portions of Luna, Hidalgo, Grant, and Catron counties in New Mexico. This effort is in response to groundwater quality concerns, especially in light of the area's total dependence on groundwater for drinking water.

The border region is one of the fastest growing population centers with over 3 million people projected by 2015. Groundwater levels in parts of the region have declined and projected water demand will put additional strain on the area's scarce water resources. Local, state and federal agencies concur that a better understanding of shared transboundary water resources is needed. The environmental and economic impacts of the North American Free Trade Agreement have provided an additional impetus to monitoring the area's natural resources.



Information on the region's water quality and quantity has been gathered by numerous entities over the years for a variety of purposes. The data exist in different formats, differ in resolution and data quality, and often are not readily accessible. The need for aggregating and analyzing existing data is apparent.

The project has six main objectives. First, existing well data from various entities will be evaluated for accuracy and subsequently transposed into a common database format developed for international data transfer. Well data will be collected from sources including the U.S. Geological Survey, New Mexico Environment Department, and the New Mexico Office of the State Engineer. The well data will be incorporated into GIS format and presented on maps of the region.

Second, transboundary aquifers will be identified and characterized as to their lateral and vertical extent, saturated thickness, and volume of usable and marginal quality water in storage. Potential recharge zones will be identified and the potential for contamination will be assessed. Investigators will digitize and map the surface extent of the aquifers and other adjacent and/or contributing groundwater aquifers into ARC/INFO GIS coverages.

Third, existing groundwater quality analyses from federal, state and municipal agencies will be compiled and evaluated for accuracy. Again, these data will be transferred to a common database format. Data on concentrations of dissolved constituents including major cations and anions and other selected trace elements will be compared. The chemical quality of surface and groundwater from adjacent aquifers will be studied for potential interaction. Aquifer susceptibility to non-point and point source contamination will be determined. The DRASTIC model will be utilized to produce a natural sensitivity index/map of the aquifers. All existing data will be evaluated for their suitability for groundwater models using a GIS-based analysis to identify areas of weak coverage. A collection/monitoring program will be recommended.

(Continued on page 2)

Inside This Issue	Reobservation of the Federal Base Network in New Mexico.....	3
	GNIS Online.....	5
	Framework Moving Toward Reality.....	6
	SMART Cargo Container Tracking System Developed at SNL.....	6



From the President

The spring meeting this year will focus on the use of the Internet for live, realtime, GIS data manipulation. There are continuing efforts to utilize the Internet as a better platform for the exchange and real time use of information. GIS is one of the many information technologies that are being "experimented" with on the Internet. This will be the topic for our Spring meeting on April 17, 1998. We will focus on two of the "lead" companies in developing GIS technology for the Web. In addition to having these two companies present their views and software applications, we will have one of the foremost experts in the nation, Brandon Plewe, with us to share his knowledge on this emerging technology. Many agencies in New Mexico already have GIS data available on the Web, and several are working toward "real time" GIS.

I would like to take this opportunity to share one of my recent experiences regarding the Internet and the National Spatial Data Infrastructure (NSDI). I was recently invited to attend a workshop sponsored by the Federal Geographic Data Committee (FGDC) to determine methods for measuring the progress of the NSDI effort. This workshop was attended by many Federal, State, and Local government/agency officials from around the U.S. Many of the participants were considered leaders in their respective positions, and proponents of NSDI. I was amazed to learn that other than the FGDC representatives, no one else in the group really understood the value of metadata and NSDI. Representatives from cities and counties could see no value at all in the Metadata Standard and NSDI for their organizations, and have no interest in developing NSDI compliant clearinghouse nodes, or any type of online GIS data at all. Other representatives all had misunderstandings about NSDI and metadata. I was amazed at the general lack of understanding about the Metadata Standard and NSDI. Once again New Mexico seems to have a greater general understanding of these issues than the rest of the nation.

I always find when I attend events like this, with national participation, I return with a renewed appreciation for New Mexico, and how progressive we are in the geospatial data business. Many of the GIS programs in New Mexico are leaders in their field. I feel this is due largely to the fact that many of the people involved in GIS in New Mexico are in the business because they truly love their work, and aren't just putting in their time on the job. That is also the reason that NMGIC has been such a success over the years. We are all involved in NMGIC because of our strong interest in geospatial data, not because our job demands it (some members even have to take annual leave from their jobs to participate).

Don't forget that the Spring meeting is also the meeting that we invite vendors of geospatial related products to visit with you and display their wares. I hope to see everyone on the 17th. This will be a very interesting and informative meeting.

NMGIC's 1998 Spring Meeting

The 1998 spring meeting will be April 17th in the circular conference room at UNM's Science and Technology Park, 801 University Blvd SE. The NMGIC Board has selected *Online GIS* as the program theme, and is in the process of finalizing the agenda. Brandon Plewe, author of *GIS Online: Information Retrieval, Mapping, and the Internet* by Onward Press has been invited to speak.

Mark your calendars now and plan to attend!
Box lunches will be provided.

(Continued from page 1)

Fourth, the hydrologic interaction of surface and groundwater will be studied. Depth to groundwater and direction of groundwater flow will be determined for each aquifer. Flow models simulating

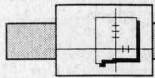
potential pathways for groundwater traverse will be developed. Interaction between aquifers and rivers will be determined along with the potential for transboundary subsurface groundwater flow. Existing river loss and gain studies will be examined to evaluate the groundwater flow direction and the loss and gain of the rivers due to interaction with the surrounding aquifer.

Fifth, pumpage data by type of user (irrigation, municipal, industrial, domestic, and livestock) will be collected and quantified. Pumpage effects on water levels and water quality will be estimated by reviewing the historical record of observation wells. Existing aquifer simulation computer models will be reviewed and recommendations will be made for additional modeling efforts.

Finally, the New Mexico WRRI will coordinate with the International Boundary Water Commission - U.S. Section for any data exchange, review and evaluation. A binational data report of officially exchanged data will be prepared. The report will include electronic media database tables, GIS coverages for each aquifer, corresponding attribute tables, maps, and graphics to illustrate the characteristics of the studied aquifers. A final report to EPA will incorporate all data and provide conclusions and recommendations.

The project began in September 1997 and will end in September 1998. In addition to Bobby Creel, John Kennedy, GIS technician (WRRI), Marta Remmenga (NMSU's Statistics Center), Barry Hibbs, a geologist/geochemist from Cal State, Los Angeles, and John Hawley, retired, from the New Mexico Bureau of Mines and Mineral Resources will participate on the study team.

Bobby Creel, WRRI



Reobservation of the Federal Base Network in New Mexico

Starting about ten years ago, NMGIC, working through the Global Positioning System (GPS) Committee, played a key role in establishing the High Accuracy Reference Network (HARN) component of the National Spatial Reference System (NSRS) throughout New Mexico. New Mexico was one of the first states to begin the work involved in establishing a HARN. The HARN is a high-accuracy subset of the federally-provided NSRS and is designed to support a wide range of GPS applications. The control stations that comprise the HARN have very well-determined three-dimensional geodetic positions. The stations are primarily designed and distributed for occupation by GPS equipment thereby providing direct connections to the most accurate level of the NSRS.

The motivation behind establishing the HARN is that as GPS technology evolved, it soon became apparent that it provided a tool whose accuracy capability routinely exceeded the accuracy provided by the existing national geodetic control network. So, on a state by state basis, with varying degrees of state and federal involvement, HARNs were established around the country. The final statewide HARN was completed in late 1997. So we now have in place a national HARN.

The National Geodetic Survey (NGS) has identified as its responsibility, for maintenance and modernization, a subset of the statewide HARNs which is known as the Federal Base Network (FBN). The FBN is a collection of geodetic stations with a nominal spacing of 100 km that covers the entire nation. NGS is about to commence the task of reobserving, with high accuracy GPS measurements, the nationwide FBN. The NGS field party will probably be in New Mexico sometime this fall in order to occupy our FBN stations. In addition to observing and processing the data from FBN stations, NGS is also willing to accept a limited amount of data from cooperating organizations that wish to remeasure other stations in an area. Such stations might include HARN stations that are not also part of the FBN, additional connections to the existing vertical control network, or other special requests. The GPS Committee will be working to coordinate these additional observations in New Mexico and would appreciate hearing of any parties interested in being involved in this activity.

Although the published coordinates of our HARN in New Mexico are very accurate, and in fact have been serving as an excellent coordinate framework for several years now, we feel that small improvements are possible. Through this process of reobservation, we will have a set of consistent coordinates for the state based on a current set of high accuracy GPS observations made with state of the art equipment and processed with the latest software and extremely precise satellite ephemerides. The additional ties that we make to the vertical control network will help with the process of fine tuning the geoid model thereby allowing GPS to be used to determine very accurate orthometric heights (approaching the accuracy that can be achieved with conventional leveling techniques). In addition, we now have three Continuously Operating Reference Stations (CORS) in New Mexico that are part of the ever-growing national CORS network. This will be the first real opportunity to make extensive connections between the HARN and CORS networks which are presently exhibiting a very slight inconsistency between the two systems. So, we have a lot to gain from this forthcoming campaign. We do not expect large shifts in published station positions - probably only in the few centimeter range at most. For additional information, contact Bill Stone, National Geodetic Survey and GPS Committee Chairman (tel:768-3606 or stone-ngs@cabq.gov).

Bill Stone, GPS Committee Chair

GIS and Politics

GIS professionals spend a lot of time touting the analytical power of their technology. Quite often, however, it is the speed and flexibility of GIS mapping that really make an impression.

On Thursday, January 29, 1998, Mayor Baca announced to his department directors that President Clinton would be visiting Albuquerque on the following Tuesday. By Saturday morning, advance teams from the White House and the Secret Service had arrived in town to plan the visit. The next 72 hours would be devoted to mobilizing hundreds of workers and volunteers to ensure that the event was safe and successful.

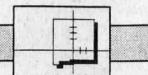
As you might expect, accurate and current maps of Albuquerque were critical to the planning process. Members of the Planning Department's AGIS staff used the City's ARC/INFO system to fill many requests on short notice.

The White House advance team needed scale maps of downtown streets to determine which intersections would be barricaded and how the park-and-ride shuttle would flow in and out of the downtown area. Detailed maps of the Civic Plaza rally site were required to locate access points, metal detectors, staging areas, press boxes, and even portable toilets. A large scale map of the downtown area was used by Mayor Baca at his press conference regarding the local rally.

The Secret Service used AGIS maps to plan motorcade routes around the metropolitan area. Detailed imagery of the Civic Plaza area was scrutinized for tall buildings and even the best access point for the Presidential limousine.

While our Washington visitors may have been unaware of some of the more sophisticated aspects of GIS, they were impressed and grateful to receive all of the maps they needed in a very short turn-around time.

Neal Weinberg, AGIS



GIS and Mapping in the Geography Department at NMSU

Recently, NMSU received a grant from ESRI, under the direction of Dr. Michael DeMers, to develop a GIS curriculum that will be included in the following courses: Computer Cartography, Fundamentals of GIS, GIS Modeling and System Design, GIS Applications, and GIS Practicum. GIS has been integrated into the planning curriculum and will be introduced into the introductory and advanced systematic geography courses over the next 12 months. Dr. DeMers was notified by Wiley Publishing Co. that his text, *Fundamentals of Geographic Information Systems* is selling well enough that they have requested a second edition. He is also negotiating with Wiley to produce a laboratory manual and a second text on raster GIS modeling.

Professor Duane Marble will be a distinguished visiting professor at NMSU. He will visit campus, give lectures, and meet with students, faculty and university administration on March 15-22, 1998. Professor Marble is the most senior GIS faculty member in the nation. He was instrumental in helping to establish ESRI.

Project Overview:

- The Projects Laboratory, under the direction of David Garber, is working on GIS projects with New Mexico Border Health and the New Mexico Department of Economic Development.
- Our Office of Surface Mining student GIS training program is working with four minority students.
- The statewide airport GIS project (generating GIS files and maps for most of the airports in the state) is entering its third phase.
- Ralph Campbell, a graduate student, is finishing a predictive GIS model of mountain lion habitat in the San Andres Mountains.
- Sandy Gaiser is finishing her work on testing the relationship between the county's performance zoning ordinance and the need for commercial properties in southern Doña Ana County.

Robert Czerniak

NMSU Department of Geography

Violaters Will Be Renamed

You may not know it, but the names listed in the USGS GNIS database are the *only* ones that may be used in maps and reports prepared by federal agencies, as those are the names accepted by the USBGN. While GNIS is only about 20 years old, the USBGN is more than 100 years old and so is the above policy.

The reason for the policy is to prevent the rampant confusion that would result from names not being standardized, from, say, the pass in the Chuska Mountains being referred to as Washington Pass on some maps, or as Narbona Pass on others.

But recently some persons have wondered whether discrepancies still are occurring, so this has been proposed as a workshop topic at the Western States Geographic Names Conference scheduled for next September in Cody, WY.

Therefore, I'm appealing to the NMGIC membership to let me know about name variations on maps and reports. There's no punitive or enforcement intention here; no one from the USBGN will show up at an office armed with a subpoena and search warrant. We just want to know how effective standardization efforts have been and where discrepancies have occurred.

You can contact me at the Geographic Names Committee address in this newsletter.

Bob Julyan

Geographic Names Committee

The Map Legend 1998 Publication Schedule and Deadlines

Spring/Summer Issue Deadline for articles: May 15, 1998

Publication date: June 15, 1998

Fall Issue Deadline for articles: September 15, 1998

Publication date: October 15, 1998

Winter Issue Deadline for articles: January 15, 1999 Publication date: February 15, 1999

Editors of *The Map Legend* are looking for articles describing ongoing, recently completed, or recently awarded projects. "Newsy" items on your organizations, accomplishments of your personnel, event/meeting announcements.....are all welcome. Your contributions should be sent to Amy Budge either by fax (505-277-3614) or by email to abudge@spock.unm.edu by the deadlines indicated above.

NON-GNIS NAMES



GNIS Online

The best place to get current geographic names data from the U.S. Geological Survey is, you guessed it, the Internet.

The full Geographic Names Information System (GNIS) database for all 50 states is available on-line in a format that allows searches by several parameters, including name, state, county, feature type, and many more.

The database is very easy to use and would pose no problems for persons familiar with databases, but for the "database dummies" among us there are numerous help screens.

GNIS is feature-oriented, so each feature (populated place, church, school, mountain, stream, etc.) has its own record. Each record includes the county in which the feature is located, degree-minute-second lat-long coordinates, the USGS 7.5-minute quad encompassing the feature, any variant names, elevations of populated places and summits, whether the name ever was subject to the U.S. Board on Geographic Names (USBGN) decision, and a bibliographical reference. In addition, recent population estimates were added to the records for populated places.

The database does not include zip codes, and only rarely does it include historical or descriptive information. Thus GNIS would tell you that there's a place in Doña Ana County named Hatch, that it's located at 323955N1070909W, that its elevation is 4,057 feet, that it also has been known as Santa Barbara and Hatch Station, and that its 1994 population was 1,184. It would not tell you it was established in 1851, closely linked with nearby Fort Thorn, eventually named for General Edward Hatch, and was a site on the AT&SF RR line. For that information you would need the text reference, *The Place Names of New Mexico*.

The address for the GNIS website is: <http://www-nmd.usgs.gov/www/gnis/>

Canada also maintains a similar website for that nation's geographic names: <http://www-naics.ccm.emr.ca/>

And the U.S. National Imagery and Mapping Agency (formerly the Defense Mapping Agency) has a website for foreign geographic names: <http://164.214.2.59/gns/html/index.html>.

Bob Julian

State Mapping Advisory Committee Report

The New Mexico State Mapping Advisory Committee (SMAC) met on January 29th and again on February 19th of this year to develop a coordinated response to the "High Priority Digital Data" request made by the U.S. Geological Survey. The Federal agencies, led by Bob Bewley of the BLM, will submit a single response which incorporates the needs expressed by New Mexico state agencies. As competition for limited funds grows keener, it is important to coordinate state data needs with those of federal agencies. Representatives from seven federal and five state agencies assembled in the EDAC conference room to assess data requirements for New Mexico. Each agency's needs were organized by 7.5' quadrangles, data type, and this year's data requests, including DOQs, DEMs, and DLGs. The data requirements were prioritized, and plotted on index maps for submission to USGS. A report on New Mexico's response will be made to the NMGIC membership at the Spring meeting, April 17th.

Mike Inglis, Chair

Introducing Gary Kress

Gary Kress will replace Laurie Davis as the National Mapping Division (NMD), Coordination and Requirements liaison for the State of New Mexico. Gary has been in the Mapping Production Operations Section most of his 15 years with NMD. The last 8 years he was the technical Point of Contact with the Digital Data Services contracting program. Before joining NMD, Gary was a Research Geologist with the Iowa Geological Survey. If you have any questions or need support on any NMD programs or products, please notify Gary at the following location in Denver, CO.

Gary Kress
USGS, National Mapping Division
P.O. Box 25046, MS 507
Denver Federal Center, Bldg. 810
Denver, CO 80225-0046
Tel: 303-202-4451
Fax: 303-202-4137
Email: gekress@usgs.gov

ESRI Training Classes in New Mexico (Albuquerque)

March 16-20	Advanced ARC/INFO
May 11-15	Customizing ARC/INFO with AML
June 1-5	Introduction to ARC/INFO

All training is given by ESRI-certified instructors. For information on cost and registration, contact ESRI-Denver at 303-449-7779, or see their website at <http://www.esri.com/base/training/training.html>



Framework Moving Toward Reality

At a recent meeting hosted by the Federal Geographic Data Committee in Annapolis, MD (January 27-29, 1998), Framework developers around the nation focused their attention on how nascent infrastructures could be moved from "Project-to-Program" status. Representatives from more than two dozen organizations grappled with how to gain support for implementing the technical and management issues that must be solved in order to move Framework closer to reality. Among those represented were several state councils (including NMGIC), Regional Councils like San Diego Area Governments (SANDAG), Departments of Natural Resources (e.g., Washington State, Maryland), Metropolitan Councils, and several State Directors of GIS.

The issues that attracted most attention were:

1. how to achieve high-level management interest in framework data development (referred to as "executive guidance");
2. how to develop a local, state, or regional "business case" for pursuing framework development;
3. how to maintain human and financial resources through cooperative partnerships, cost recovery from data dissemination, and budgetary processes;
4. and, how to recognize opportunities for advancing a framework infrastructure.

A report of the workshop proceedings will be available through FGDC in the near future (watch future issues of *The Map Legend* for an announcement). Also distributed at the meeting was a book titled *Framework: Introduction and Guide* published in late 1997 by the FGDC. It will be a significant contribution to those who want a quick self-tutorial on the framework concept. Copies of the book are available in a limited quantity from EDAC by contacting either Amy Budge or Stan Morain at 505-277-3622 ex.231 or 228. You can also request a copy via email to smorain@spock.unm.edu.

Stan Morain, EDAC

SMART Cargo Container Tracking System Developed at Sandia National Labs

The Advanced Technologies for Intermodal Ports of Entry (ATIPE) project has worked to speed and streamline international border crossings through improved information systems. A key stakeholder requirement is tracking and status information for cargo containers. This information can allow customs inspectors to anticipate workloads and manufacturers to predict arrival times for Just In Time (JIT) manufacturing. The Secure Monitoring and Real-Time Tracking (SMART) prototype tracks vehicles or standard shipping containers worldwide and reports on them through the Web.

SMART is a three-tier client-server system that takes sensor and positional data from the Authenticated Tracking and Monitoring System (ATMS) and publishes it on a web server. Using any web browser, users can access this server and submit queries to determine sensor status, nearest landmark, and estimated time of arrival. Users view world-wide maps showing vehicle position, and can use a web interface to pan, zoom, and control symbolization. SMART generates all web pages dynamically for each user.

Background information is available at <http://wilds.sandia.gov/Smart>. The Sandia GIS website is at <http://www.sandia.gov/gis>. Point of contact is John Ganter at jganter@sandia.gov.

John Ganter, Sandia National Labs

NSDI Metadata and Clearinghouse Training Workshops

Under a cooperative agreement with the Federal Geographic Data Committee (FGDC) the Earth Data Analysis Center in collaboration with the Colorado Department of Natural Resources, the Arizona Geographic Information Council, and NMGIC, is presenting a series of workshops on developing metadata and clearinghouse nodes. The EDAC team includes Amy Budge and Stan Morain with assistance from Rich Friedman, Gar Clarke, and Doug Streh. The workshops present an overview of the FGDC Metadata Content Standard, a discussion on metadata tools, and how to prepare metadata for clearinghouse servers. Workshops have been held in Ft. Collins, Colorado (January 8th) and Phoenix, Arizona (January 20-21). A special workshop was held January 14 and 15 in Albuquerque and Glorieta for eleven State Historic Preservation Offices (SHPOs) as part of a cooperative effort with the Wyoming SHPO. All of the workshops have been well-attended and the feedback has been positive.

The third of the three workshops proposed in the agreement will be held for the NMGIC membership. Dates and location to be announced through NMGIC's Workshop Coordinator, Bobby Creel.

Have Metadata Got You Down?

To follow up on the Metadata Videoconference held in October 1997, Denise Bleakly would like to hear from anyone who is actively pursuing metadata development. She is compiling information on what tools people have used, how successful they were, and any tips people would like to share about metadata. She will be presenting the results in an upcoming issue of *The Map Legend*. If you would like to share your story, please contact Denise by phone at 505-284-2535, or by email at drbleak@sandia.gov.

Colorado Plateau Data Coordination Workshop

On October 28-29, 1997 the Colorado Plateau Data Coordination Workshop was held at the Convention Center in Farmington, NM. The workshop welcomed approximately 70 participants representing a wide range of local, county, state, and federal agencies, as well as representatives of The Navajo Nation and the Hopi and Jicarilla Apache tribes.

The purpose of the workshop was:

- To establish relationships and networking among data users in the Colorado Plateau region;
- Provide a forum to discuss data and data issues for the Colorado Plateau;
- Share information on existing investments in infrastructure and activities; and
- Create a strategy to maximize current and future investments in geographic data and technology.

Six breakout sessions addressed six issues identified by the participants as important to present and future cooperation: public access; people and policies; consortium; directories and clearinghouse; data integration; and data standards.

Each breakout session provided a summary of conclusions to the entire group of participants. Following a review of the breakout session results, the entire group convened to review and finalize the Vi-

sion, Mission and Goal of the workshop. The resultant vision, mission and goal are listed below:

Vision: Our vision is to promote the sharing of regional data among all organizations and citizens in support of a sustainable economy and the good stewardship of the natural and cultural resources of the Colorado Plateau region.

Mission: Our mission is to provide a forum and framework for interested parties to participate in and make recommendations that encourage the creation and sharing of impartial and credible geographical data for the Colorado Plateau region.

Goal: Our goal is to improve our ability to effectively collect, manage and transfer data across all political boundaries enabling more informed decisions to be made regarding the Colorado Plateau region.

A presentation on the results of the workshop was presented by A.J. Martinez to the Colorado Plateau Forum on October 30th. Plans to continue the progress made at the workshop through meetings and continued cooperation are planned for the future.

Sharolyn Anderson

The Remote Sensing Tutorial

A "textbook" sized CD-ROM entitled *The Remote Sensing Tutorial: An Online Handbook*, sponsored by NASA Goddard Space Flight Center (Code 935) and prepared by Dr. Nicholas M. Short, is now available. This work contains 21 Sections (Chapters) covering a wide range of topics, with emphasis on satellites (mainly Landsat) and other space platforms. These include: Basic Principles; Image Interpretation and Analysis (emphasizing computer processing); Discipline Applications; Radar and Thermal Remote Sensing; Aerial Photogrammetry and Topographic Mapping; Ground Truthing; Astronaut Photography; Meteorological Satellites; Geographic Information Systems; The EOS Program; Basic Science Studies; Planetary Remote Sensing (including a subsection on Cosmology); and the Future of Remote Sensing and Commercialization. This format allows use of color illustrations that comprise many of the 100s of figures included in the Tutorial. The wide audience to which this work is directed include both pre-college and college educators, professionals entering or active in the remote sensing field in both government and private sectors, and the interested general public.

The Tutorial can also be accessed on the Internet at this address:

<http://code935.gsfc.nasa.gov/Tutorial/TofC/Coverpage.html>

For those who wish to avoid slower Internet downloading times or to use the Tutorial in an instructional mode, a limited number of CD-ROM copies are available for \$10 each (check or money order payable to GSTI) to cover materials, preparation, and mailing. Contact this distributor:

Global Science & Technology Inc.
6411 Ivy Lane, Suite 300
Greenbelt, MD 20770

Attn: William Dickinson, Jr.

1998 Election for NMGIC Board

Five of the nine Board member terms expire in 1998. Nominations have been accepted and ballots will be mailed to all current members (1998 dues must have been paid) by March 17th. If you would like to vote, please pay your 1998 dues before March 17th. See membership form in this newsletter (page 8).



Cool Internet Web Sites

To continue the series of mapping and GPS related websites, we have found the following sites that may be of interest to the NMGC membership. As always, if you find a site you think is useful to the membership, please contact Denise Bleakly at 505-284-2535 or email to drbleak@sandia.gov to add it to our list. Denise will be compiling a list of NMGC corporate sponsors for a future issue of *The Map Legend*.....please contact her.

The following sites were compiled from various trade magazines, submissions from members, and sites found by surfing the web. They are listed in no particular order.

Surveying and GPS related websites

- | | |
|----------------------------------|---|
| • Professional Surveyor Magazine | http://www.profsurv.com |
| • BRB Surveying Instruments | http://www.bbrsurveying.com |
| • Spectra Precision | http://www.spectraprecision.com |
| • Holman's | http://www.holmans.com |
| • Trimble | http://www.trimble.com |
| • Ashtech | http://www.ashtech.com |
| • Leica | http://www.leica.com/usa |
| • Tripod Data Systems | http://www.tdsurvey.com |

Websites for web-based mapping products. A review of these products is published in *GIS World*, September 1997.

- | | |
|---|---|
| • Autodesk MapGuide 2.5 | http://www.mapguide.com |
| • ESRI MapObjects and Internet Map Server | http://www.esri.com |
| • Intergraph Geomedia Web Map 1.0 | http://www.intergraph.com/geomedia/ |
| • MapInfo Proserver | http://www.mapinfo.com |

Websites related to online GIS services

- | | |
|---------------------------------------|---|
| • MapQuest! | http://www.mapquest.com |
| • BigBook | http://www.bigbook.com |
| • ImageNet | http://www.coresw.com |
| • GRASSlinks | http://www.regis.berkeley.edu/grasslinks |
| • Online guide to online GIS services | http://kayenta.geog.byu.edu/gisonline |

1998 Membership Dues

New Mexico Geographic Information Council, Inc.

\$20 Regular Dues; \$10 Students (with ID); \$100 Corporate Dues

Name: _____

Organization: _____

Business Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____


Email: _____

Enclosed is my: ☐ Check

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Please make check payable to: NMGC Inc. Payment should be mailed to: NMGC, Inc., c/o Denise Bleakly, Treasurer, Sandia National Labs, MS 1147, Albuquerque, NM 87185-1147.

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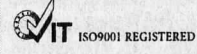
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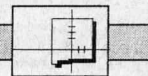
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Calendar



ACSM 1998 Annual Convention & Exhibition, Baltimore Convention Center, Baltimore, MD, March 2-5, 1998. Contact: Denise Calvert, ACSM, 5410 Grosvenor Lane, Suite 100, Bethesda, MD 20814. Telephone: 301-493-0200. Fax: 301-493-8245. Website: <http://www.landsurveyor.com/ACSM/>

Tilting the Balance: Climate Variability and Water Resource Management in the Southwest, University of Texas at El Paso (UTEP), El Paso, TX, March 2-4, 1998. Contact: Conferences Services. Telephone: 915-747-5142. Fax: 915-747-5538. Email: confserv@utep.edu Website: <http://southwest.hq.nasa.gov/southwest/>

Internet Mapping/GIS Seminar, Crowne Plaza Pyramid, Albuquerque, NM, March 19, 1998. Contact: ESRI, 380 New York Street, Redlands, CA 92373-8100. Telephone: 909-793-2853, ext. 1-1070. Fax: 909-307-3051. Website: <http://www.esri.com/seminars>

Environmental Applications of Geographic Information Systems Symposium, 1998 American Chemical Society, Dallas, TX, March 29-April 2, 1998. Contact: Martha Well, PhD, Tennessee Technological University, Water Center, Box 5033, Cookeville, TN 38505. Phone: 931-372-6123. Fax: 931-372-6346. Email: mjw5030@tntech.edu

1998 ASPRS-RTI Annual Conference, Tampa Convention Center, Tampa, FL, March 30-April 4, 1998. Contact: ASPRS/RTI Annual Conference, 5410 Grosvenor Lane, Suite 210, Bethesda, MD 20814-2160. Telephone: 301-493-0290. Fax: 301-493-0208. Website: <http://www.asprs.org>

GIS '98/RT '98 Pathways to Knowledge Integration, Toronto, Ontario (Canada), April 6-9, 1998. Contact: GIS World, Inc., 400 N. College, Suite 100, Ft. Collins, CO 80524. Telephone: 970-221-0037. Fax: 970-221-5150. Website: <http://www.geoplace.com>

NMGIC Spring Meeting, UNM Science & Technology Park, 801 University SE, Albuquerque, NM, April 17, 1998. Contact: Rick Watson, San Juan College, 4601 College Blvd, Farmington, NM 87401. Telephone: 505-599-0373. Fax: 505-599-0385. Email: watson@sjc.cc.nm.us

Enterprise-Wide Geospatial Solutions: Realizing the Benefits, AM/FM International Conference, San Jose, CA, April 26-19, 1998. Contact: AM/FM International, 14456 East Evans Avenue, Aurora, CO. Telephone: 303-337-0513. Website: <http://www.amfmintl.org>

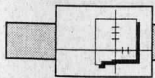
Integrating GIS & CAMA Conference, Hyatt Regency, Albuquerque, NM, April 27-28, 1998. Contact: URISA, 1460 Renaissance Drive, Suite 305, Park Ridge, IL 60068-1348. Telephone: 847-824-6300. Fax: 847-824-6363. Email: info@urisa.org

MidAmerica GIS Symposium, Cornhusker Hotel and Burnham Yates Conference Center, Lincoln, NE, May 4-7, 1998. Contact: Jim Merchant, Conservation and Survey Division, 113 Nebraska Hall, University of Nebraska, Lincoln, NE 68588-0517. Telephone: 402-472-7531. Email: jm1000@tan.unl.edu Website: <http://www.geo.drake.edu/magic/>

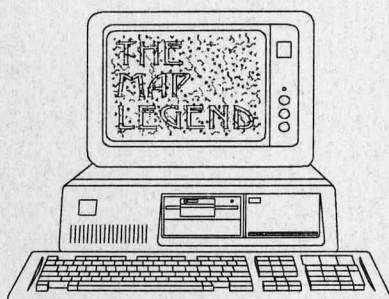
Taking Navigation to New Heights, Adams Mark Hotel, Denver, CO, June 1-3, 1998. Contact: The Institute of Navigation, 1800 Diagonal Road, Suite 480, Alexandria, VA 22314.

URISA 98, Sharing Information Solutions: A Global Vision, Charlotte, NC, July 18-22, 1998. Contact: URISA, 1460 Renaissance Drive, Suite 305, Park Ridge, IL 60068-1348. Telephone: 847-824-6300. Fax: 847-824-6363. Email: info@urisa.org Website: <http://www.urisa.org>

1998 ESRI Worldwide User Conference, San Diego Convention Center, San Diego, CA, July 27-31, 1998. Contact: ESRI, 380 New York Street, Redlands, CA 92373-8100. Telephone: 909-793-2853, ext. 1-1363. Website: <http://www.esri.com/events/uc>



THE MAP LEGEND



Editor: Amy Budge

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